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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
08/877,684	06/17/1997	GEORGE ALAN VAUGHAN	96B035/2	6303

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EXAMINER

PASTERCZYK, JAMES W

ART UNIT PAPER NUMBER

1755

DATE MAILED: 12/19/2002

37

Please find below and/or attached an Office communication concerning this application or proceeding.

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Office Action Summary

Application No.
08/877,684

Applicant(s)
Vaughan et al.

Examiner
J. Pasterczyk

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on Sep 18, 2002
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1, 6, 13, 17-20, 22-27, 30, and 33-40 is/are pending in the application.
- 4a) Of the above, claim(s) 22-27, 30, and 33-40 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 6, 13, and 17-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☒ Claims 1, 6, 13, 17-20, 22-27, 30, and 33-40 are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
*See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

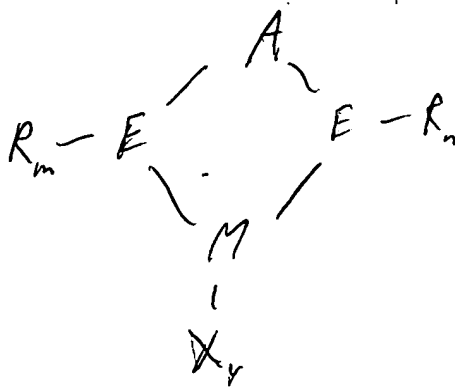
Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s). _____ 6) ☐ Other:

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1. This Office action is in response to the request for reconsideration filed 9/18/02 and refers to the Interview Summary of 8/22/02.

2. To recapitulate the results of the above-noted interview, applicants came forward with documentary evidence having various dates of publication that the term "covalently" when used as an adverb to modify "bonded" includes what is conventionally considered to be covalent bonding as well as what was once referred to as dative bonding. In other words, the term "dative bonding" is now, according to applicants, subsumed into the overall category of "covalent bonding", hence it does not matter where the two electrons came from that make up the bonding interaction between two atoms as long as they exist and are shared in the internuclear space by the two atoms in question. In addition, attorney for applicants conceded that the structure, at least as far as atomic connectivity is concerned, for the catalyst precursor of claims 1, 6 and 13 is as follows with the variables being defined as in claims 1, 6 and 13:



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3. Claims 1, 6, 13 and 17-20 are under consideration. Claims 22-27, 30 and 33-40 are withdrawn from consideration as being to nonelected inventions in a restriction requirement made previously. All other claims before claim 40 have been cancelled by amendment.

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) do not apply to the examination of this application as the application being examined was not (1) filed on or after November 29, 2000, or (2) voluntarily published under 35 U.S.C. 122(b). Therefore, this application is examined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

5. Claims 6 and 13 are rejected under 35 U.S.C. 102(b) as being anticipated by East German Patent 280 527 A1 (hereafter referred to as Selke).

Selke discloses the invention as claimed (abstract). The compound of Selke is a group 9 metal having an L ligand which is a neutral hydrocarbyl-containing ligand, m and n are both 2, the atoms E are both phosphorus, and the group corresponding to A of the present claims contains group 15 elements. In addition the compound is "immobilised" on an inorganic material

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comprising inter alia silica gel, a solid material. The recitation of "for olefin polymerization" is considered to be mere intended use. The connectivity of the atoms and groups in the prior art compound corresponds to that of the present invention, as does the bonding between the E groups and the M atom.

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 6 and 13 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Sommazzi et al., USP 5,314,856 (hereafter referred to as Sommazzi).

Sommazzi discloses the invention substantially as claimed (abstract; col. 2, l. 4-18; col. 3, l. 8-16, l. 46-55; col. 4, l. 12-19, l. 40 to col. 5, l. 1-29; example 3).

Sommazzi lacks disclosure of the actual connectivity of the atoms in the metal compound.

However, given the nature of the bidentate ligand used by Sommazzi, it is chemically logical that the acid would protonate off the carbamate of the palladium starting material while chemically reducing it, and that the bidentate ligand would bond to the palladium atom, forming the L group of the present invention.

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Since the prior art appears to disclose and claim the present invention on the basis of inherent property characteristics which would either anticipate or render obvious the present invention, an alternative 35 USC 102/103 rejection is deemed appropriate, and the burden of proof that the prior art does or does not read on the present invention shifts to applicants as in *In re Best*, 195 USPQ 430, 433 (CCPA 1977).

8. Claims 1, 6, 13 and 17-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over each of Sommazzi and Selke as cited above in view of Brookhart et al., USP 5,866,663 (hereafter referred to as Brookhart).

The disclosures of Sommazzi and Selke have been discussed above.

Neither of Sommazzi or Selke discloses use of a cocatalyst having a non-coordinating anion precursor or the amount of precatalyst on the support.

However, varying the amount of precatalyst on the support is within the skill of the routineer in the art based on the amount of reactivity he would wish to achieve and the cost of the precatalyst since these late transition metals are generally fairly expensive, and the use of non-coordinating anion precursor cocatalysts is taught by Brookhart at col. 74, l. 10-38.

It would have been obvious to one of ordinary skill in the art to apply the teaching of Brookhart to the disclosures of either of Selke or Sommazzi with a reasonable expectation of obtaining a highly-useful olefin polymerization precatalyst with the expected benefit of the precatalyst being activated with the comparatively lower cost non-coordinating anionic precursors over e.g. the more expensive MAO.

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9. Claims 6, 13 and 17-20 are rejected under 35 U.S.C. 102(e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over each of Brookhart as cited above and Horton et al., USP 5,726,115 (hereafter referred to as Horton).

Both Brookhart (col. 3, l. 5, l. 55-59; col. 4, l. 5, l. 49-67; col. 9, l. 58; col. 10, l. 35; col. 51, l. 51-65; col. 74, l. 10-38; col. 110, example 98), and Horton (col. 2, l. 23; col. 3, l. 64 to col. 4, l. 40; col. 5, l. 36-44) disclose that their precatalyst compounds reading on the present invention can be supported on solid supports.

However, neither Brookhart nor Horton explicitly disclose or teach that the precatalyst compounds are "immobilized" on the supports.

Nevertheless, one of ordinary skill in the art would have expected that the compounds of Horton or Brookhart, when reacted with the support materials they disclose, would have become bonded to the support materials and thus immobilized.

Since the prior art appears to disclose and claim the present invention on the basis of inherent property characteristics which would either anticipate or render obvious the present invention, an alternative 35 USC 102/103 rejection is deemed appropriate, and the burden of proof that the prior art does or does not read on the present invention shifts to applicants as in *In re Best*, 195 USPQ 430, 433 (CCPA 1977).

10. Claims 1, 6, 13 and 17-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over each of Horton and Brookhart as cited above.

The disclosures of Horton and Brookhart have been discussed above.

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Neither Horton nor Brookhart explicitly discloses or teaches the amount of precatalyst bound to the support.

However, such a variable would have been within the skill of the routineer in the art to achieve with only minor experimentation.

It would have been obvious to one of ordinary skill in the art to apply that skill to the disclosures of Brookhart or Horton with a reasonable expectation of obtaining a highly-useful olefin polymerization precatalyst with the expected benefit of the precatalyst being cheaper since it has a lower loading of an expensive late transition metal compound on it.

11. Claims 1, 6 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over any of Drent, USP 4,849,542 (hereafter referred to as Drent), EPO 0 454 231 (hereafter referred to as Brookhart II), or Johnson et al., J. Am. Chem. Soc., vol. 117, no. 23, pp. 6414-6415 (1995) (hereafter referred to as Johnson) in view of any of Klabunde, USP 5,030,606 (hereafter referred to as Klabunde), Braca et al., USP 5,328,882 (hereafter referred to as Braca), or WO 83/02907 (hereafter referred to as Masters).

Drent discloses a transition metal precatalyst reading on the present invention (col. 3, l. 35). Brookhart II does likewise (p. 3, l. 45-58), as does Johnson (schemes 1 and 2).

None of the primary references discloses or teaches the immobilization of such a transition metal precatalyst on a support material.

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However, each of Masters (p. 7, l. 14-15; example 2), Klabunde (col. 7, l. 49-51), and Braca (abstract; example 1) teaches the immobilization of metal compounds similar in structure to those of the present invention and the primary references on solid support materials.

It would have been obvious to one of ordinary skill in the art to apply the teachings of any of Masters, Klabunde, or Braca to the disclosures of any of Drent, Brookhart II or Johnson with a reasonable expectation of obtaining a highly-useful supported precatalyst with the expected benefit of the precatalyst affording a catalyst that has a longer lifetime, simplified removal of products from the catalyst, or enhanced catalyst activity.

12. Claims 1, 6, 13 and 17-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Drent, Brookhart II, Johnson, Masters, Klabunde, and Braca as applied to claims 1, 6 and 13 above, and further in view of Brookhart et al., USP 5,866,663 as cited above.

The disclosures of the primary references have been discussed above.

None of the primary references discloses or teaches use of an ionic cocatalyst with the precatalyst of the present invention.

However, Brookhart teaches that such a catalyst is conventionally used with metal-containing precatalysts reading on the present invention (col. 74, l. 10-38).

It would have been obvious to one of ordinary skill in the art to apply the teaching of Brookhart to the disclosures of the primary references with a reasonable expectation of obtaining a highly-useful olefin polymerization precatalyst with the expected benefit of the catalyst being

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more cheaply activated than with the conventional alumoxanes, which are costly and generally require large excesses to attain successful catalyst activation.

13. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The USPs to Angelici, Braca, Masters, and Hill all disclose further reasons why one may wish to immobilize a catalyst on a support. The other references deal with the proprietary Unipol™ process, which is a gas phase olefin polymerization process using a fluidized bed reactor that is in heavy use throughout this country.

14. Although some of the above rejections may revive rejections or prior art earlier considered distinguished over, the ultimate clarification of applicants' intended meaning of "covalently" as well as their clarification of the connectivity of the atoms in their catalyst precursor rendered it necessary to reinstate the rejections and prior art. In addition, although patent applicants may be their own lexicographers (*Fromson v. Advance Offset Plate, Inc.*, 720 F.2d 1565, 1569, 219 USPQ 1137, 1140 (Fed. Cir. 1983)), applicants also may not distort art-recognized terms (*Ex parte Klager*, 132 USPQ 203 (BOPA 1959)).


15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to J. Pasterczyk whose telephone number is (703) 308-3497. The examiner can normally be reached on M-F from 9 to 5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Bell, can be reached on (703) 308-3823. The fax phone number for the organization where

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this application or proceeding is assigned is (703) 872-9310 for normal faxes, 872-9311 for after final faxes.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.


Mark L. Bell
Supervisory Patent Examiner
Technology Center 1700



J. Pasterczyk

12/4/02